



DIVISION OF
CORPORATION FINANCE

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

May 27, 2014

Via E-mail

Timothy M. Shannon
Chief Financial Officer
Baxano Surgical, Inc.
110 Horizon Drive, Suite 230
Raleigh, North Carolina 27615

**Re: Baxano Surgical, Inc.
Registration Statement on Form S-3
Filed May 2, 2014
File No. 333-195648**

Dear Mr. Shannon:

We have limited our review of your registration statement to those issues we have addressed in our comment. Please respond to this letter by providing the requested information. If you do not believe our comment applies to your facts and circumstances, please tell us why in your response.

After reviewing any amendment to your registration statement and the information you provide in response to the comment, we may have additional comments.

Registration Statement Fee Table

1. We note that you are registering 21,520,982 shares of your common stock for resale. Based on the aggregate number of shares being registered for resale relative to the number of shares outstanding held by non-affiliates, please tell us your basis for determining that the transaction is appropriately characterized as a transaction that is eligible to be made on a shelf basis under Rule 415(a)(1)(i).

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

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Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;
- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

Please contact Tom Jones at (202) 551-3602 or me at (202) 551-3617 with any questions.

Sincerely,

/s/ Russell Mancuso

Russell Mancuso
Branch Chief

cc (via e-mail): Edward A. King